



CASE REPORT

Plasmablastic lymphoma of oral mucosa type: A case report

Eliza Carla Barroso Duarte ^a, João Batista da Silveira-Júnior ^a,
Ricardo Santiago Gomez ^a, Roberto Antônio Pinto Paes ^b,
Júlio César Tanos de Lacerda ^c, Ricardo Alves Mesquita ^{d,*}

^a Department of Oral Pathology and Surgery, Dentistry School, Federal University of Minas Gerais, Brasil

^b Department of Oral Pathology, Medicine School, Santa Casa, Sao Paulo, Brasil

^c Department of Oral Medicine of Odilon Behrens Hospital, Brasil

^d Department of Oral Pathology and Surgery, Dentistry School, Federal University of Minas Gerais, Faculdade de Odontologia da UFMG, Disciplina de Patologia Bucal, Sala 3204, Av. Antônio Carlos, 6627, Pampulha 31270-901, Belo Horizonte-MG, Brasil

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KEYWORDS

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Summary A case of the plasmablastic lymphoma of oral mucosa type is described. A 60-year-old white man presented an ulcerated and bleeding swelling in the upper lip. The right hard and soft palate showed a swelling covered by a yellowish membrane. Microscopical examination showed a monotonous diffuse lymphoid proliferation of large cells with plasmablastic differentiation. The cells were immunopositive for VS38c. A PCR demonstrated IgH with monoclonal pattern and EBV DNA. The lesions resolved after treatment with local radiotherapy and systemic chemotherapy. The patient remains free of the disease after twenty-three months of treatment.

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Introduction

Diffuse large B-cell lymphoma (DLBCL) is the most common type of lymphoma in western countries, representing about one third of these neoplasms.¹

The diversity of clinical presentations, genetic, and molecular characteristics suggests that these neoplasm represent a heterogeneous group. However, the World Health Organization (WHO, 2001) considers the DLBCL as a specific category.¹⁰

Plasmablastic lymphoma (PBL) was initially described as a rare variant of DLBCL. It's present in people infected by the human immunodeficiency virus (HIV).⁵ PBL has predilection for the oral cavity

* Corresponding author. Tel.: +55 31 3499 2478; fax: +55 31 3499 2472.

E-mail address: ramesquita@ufmg.br (R.A. Mesquita).

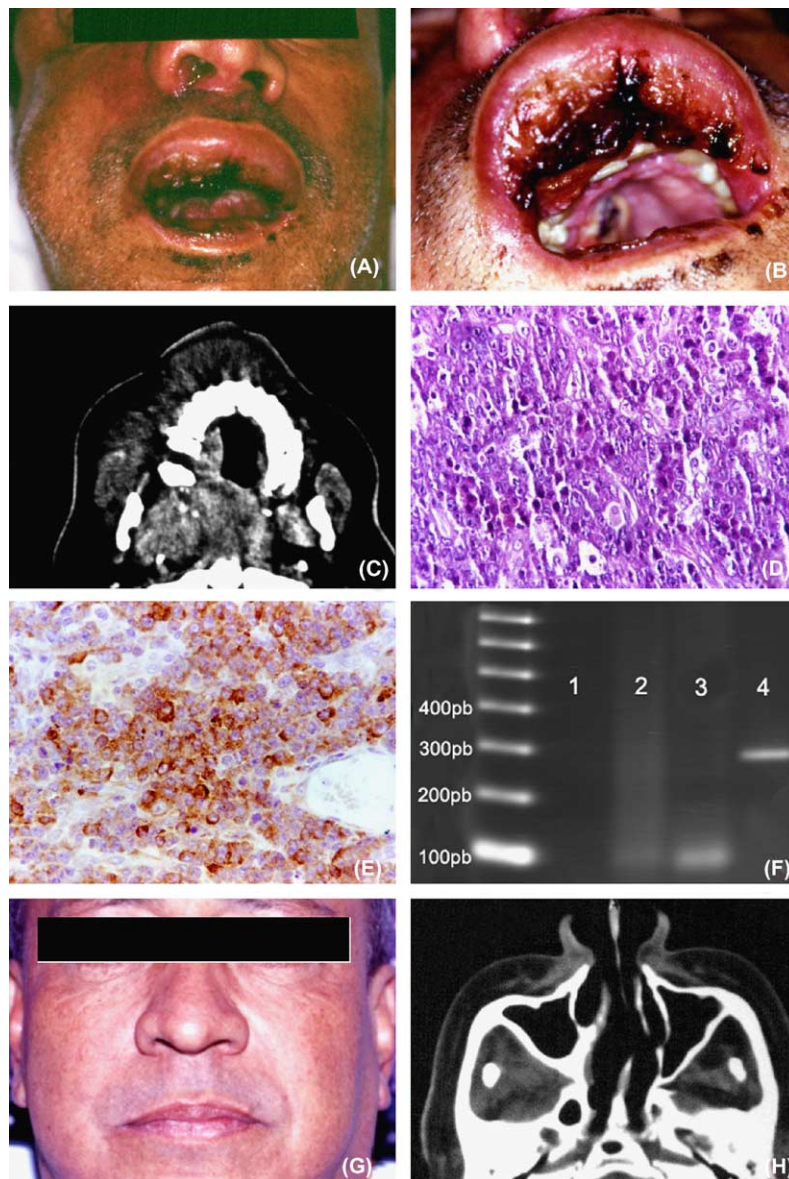


Figure 1 (A) Clinical appearance of the plasmablastic lymphoma of oral mucosa type show asymmetric face. (B) Intraoral view demonstrates an ulcerated and bleeding swelling in the upper lip. The right hard and soft palate showed a swelling covered by a yellowish membrane. (C) Computed tomography scan demonstrate a lesion infiltrating the parapharyngeal space, nasal fossae and right maxillary sinus. (D) Microscopic appearance of monotonous diffuse lymphoid proliferation composed by large cells with plasmablastic differentiation (hematoxylin-eosin, original magnification $\times 200$). (E) Lymphoid neoplastic cells immunopositive for VS38C (streptavidin-biotin technique, original magnification $\times 200$). (F) 2.0% agarose gel eletrophoresis after PCR amplification of DNA. Track 1 is negative control. Track 2 is DNA from tonsil. Track 3 is DNA from plasmablastic lymphoma of oral mucosa type with a discrete and homogeneity band (approximately 110 bases pare). Track 4 is DNA from plasmablastic lymphoma of oral mucosa type with presence of the EBV genome (band of 269 bases pares) (PCR technique, original size). (G) Clinical appearance of face after fifteen months of treatment. (H) Computed tomography scan after fifteen months of treatment within evidence of the lesion.

with local invasion and rapid dissemination to extraoral sites. PBL have a poor prognosis with average survival time of the six months.^{5,13,7} In addition, it exhibited an immunophenotypic profile with absent or weak expression of B-cell markers

and reactivity for plasma cell associated antigens, and is EBV-positive.⁴

We reported the clinical, microscopical, immunohistochemical, molecular features, EBV research and management of PBL of oral mucosa

type occurring in a non-immunocompromised patient.

Case report

A 60-year-old white man was referred to the Oral Medicine of Odilon Behrens Hospital for investigation of a swelling in the face. Extraoral examination demonstrated asymmetric face (Fig. 1(A)). Intraoral examination revealed an ulcerated and bleeding swelling in the upper lip. The right hard and soft palate showed a swelling covered by a yellowish membrane (Fig. 1(B)). A craniofacial computed tomography scan demonstrated a presence of lesion infiltrating the parapharyngeal space, nasal fossae and right maxillary sinus (Fig. 1(C)). An incisional biopsy was performed, and the specimen fixed in 10% neutral formalin solution.

Section 5 μ m thick was stained with hematoxylin-eosin. Microscopical examination showed a monotonous diffuse lymphoid proliferation composed by large cells. The cells presented with oval to round, vesicular nuclei with fine chromatin, 2–4 membrane bound nucleoli (centroblasts) or single centrally located nucleolus (immunoblasts). Cells with plasmablastic differentiation were observed. A “starry sky” with apoptotic bodies and macrophages was present (Fig. 1(D)). Sections 3 μ m thick were submitted for immunohistochemical evaluation by the streptavidin-biotin protocol. Appropriated positive and negative controls were included. The malignant cells were immunopositive for VS38c (Dako Corporation, Carpinteria, CA, USA; clone M7077; dilution 1:50), immunonegative for CD20 (Dako Corporation, Carpinteria, CA, USA; clone L26; dilution 1:50), CD3 (Dako Corporation, Carpinteria, CA, USA; Clone M0835; dilution 1:50), and cytokeratin AE1/AE3 (Dako Corporation, Carpinteria, CA, USA; clone M3515; dilution 1:50) (Fig. 1(E)). Antigen retrieval was performed with steam-heat antigen retrieval (30 min citric acid—10 mmol/L, pH 6.0).

Extraction of the genomic DNA was performed from the paraffin block in accordance with protocols described by Isola et al.⁹ and Mesquita et al.¹¹ The heavy immunoglobulin gene rearrangement (IgH) analysis was performed by a semi-nested polymerase chain reaction (PCR). The primers used have been previously described by Trainor et al.¹⁴ and Wan et al.¹⁶ PCR amplified DNA was electrophoresed in 2.0% agarose and visualized under ultraviolet light after ethidium bromide staining. A negative control was used for all PCR reactions. Tonsil was used as control for polyclonality. The DNA obtained of the case showed a dis-

crete and homogenous band on electrophoresis (Fig. 1(F)). The Epstein–Barr virus (EBV) genome was demonstrated by PCR. The primers used in PCR have previously described by Ammatuna et al.² Appropriate negative controls and positive controls were performed. The DNA obtained of the case showed a 269pb band on electrophoresis (Fig. 1(F)). The diagnosis PBL of oral mucosa type was made.

The patient was HIV-negative by three ELISA-tests. The patient was treated with 6 cycles of cyclophosphamide (120 mg), adriamycin (80 mg), oncoxin (2 mg) and prednisone (100 mg), and twenty-three sections of radiotherapy with 360 cGy/day. The lesions resolved and the patient remains free disease after fifteen months (Fig. 1(G) and (H)).

Discussion

Clinical, microscopical, immunohistochemical, molecular and EBV research findings observed in present case qualifies for the diagnosis of PBL of oral mucosa type. This lymphoma show oral mucosa involvement, plasma cell immunophenotypic profile, EBV infection, and frequent association with HIV-positive patient. The IgH analysis confirms the profile of B-cells in this lymphoma type.⁸ Eight cases of PBL of oral mucosa type in HIV negative patients were described by Delecluse et al.⁵; Oyama, et al.¹²; Colomo et al.⁴ The patient presented is HIV negative.

Colomo et al.⁴ identified several subgroups of DLBCL with plasmablastic features: PBL of oral mucosa type, PBL with plasmablastic differentiation, extramedullary plasmablastic tumors secondary to plasma cell neoplasm, and other large cell lymphomas with plasmablastic differentiation.

The treatment of non-Hodgkin lymphomas depends of the staging and includes radiotherapy, chemotherapy, and surgery or combination of these modalities.¹⁵ The high remission rate currently is observed with combined radiochemotherapy.^{6,3} In our case the patient was treated with a combination of chemotherapy and radiotherapy and the patient remains clinically stable after this treatment.

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References

1. Harris NL, Jaffe ES, Diebold J, et al. The World Health Organization classification of neoplastic diseases of the haematopoietic and lymphoid tissues: report of clinical advisory committee meeting, Airlie House, Virginia, November 1997. *Histopathology* 2000;36:69–87.
2. Ammatuna P, Capone F, Giambelluca D, Pizzo I, D'Alia G, Margiotta V. Detection of Epstein-Barr virus (EBV) DNA and antigens in oral mucosa of renal transplanta patients without clinical evidence of oral hairy leucoplakia (OHL). *J Oral Med* 1998;27:420–7.
3. Arican A, Dincol D, Akbur H, et al. Clinicopathologic features and prognostic factors of primary extranodal non-Hodgkin's lymphoma of in Turkey. *Am J Oncol* 1999;22:587.
4. Colomo L, Loong F, Rives S, et al. Diffuse large B-cell lymphomas with plasmablastic differentiation represent a heterogeneous group of disease entities. *Am J Surg Pathol* 2004;28:736–47.
5. Delecluse HJ, Anagnostopoulos I, Dallenbach T, et al. Plasmablastic lymphomas of the oral cavity: A new entity associated with the human immunodeficiency virus infection. *Blood* 1997;89:1413–20.
6. Donato V, Lacari V, Zurlo, et al. Radiation therapy and chemotherapy in the treatment of head and neck extranodal non-Hodgkin's lymphoma in early stage with a high grade of malignancy. *Anticancer Res* 1998;18:547.
7. Flaitz CM, Nichols CM, Walling DM, et al. Plasmablastic lymphoma: An HIV associated entity with primary oral manifestations. *Oral Oncol* 2002;38:96–102.
8. Gomez RS, Duarte ECB, Guimarães ALS, et al. B-leukemic infiltrate in palate. *Oral Oncology Extra* 2004;40:54–7.
9. Isola J, DeVries, Ghazvini S, Waldman F. Analysis of changes in DNA sequences copy number by comparative genomic hybridization in archival paran-embedded tumor samplas. *Am J Pathol* 1994;145:1301–8.
10. Jaffe ES, Harris NL, Stein H, et al. *World Health Organization Classification of Tumors: Pathology and Genetics of Tumors of Hematopoietic and Lymphoid Tissues*. Lyon, France: IARC Press; 2001. p. 171–4.
11. Mesquita RA, Ankai EK, Oliveira RN, Nunes FD. Avaliação de três métodos de extração de DNA de material parafinado para amplificação de DNA genômico pela técnica da PCR. *Pesq Odontol Brás* 2001;15:314–9.
12. Oyama T, Ichimura K, Suzuki R, et al. Senile EBV+ B-cell lymphoproliferative disorders: A clinicopathologic study of 22 patients. *Am J Surg Pathol* 2003;27:16–26.
13. Porter SR, Dios PD, Kumar N, et al. Oral plasmablastic lymphoma in previously undiagnosed HIV disease. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1999;87:730–4.
14. Trainor KJ, Brisco MJ, Morley AA. Monoclonality in B-Lymphoproliferative disorders detected at DNA level. *Blood* 1990;75:2220–2.
15. Ugboko VI, Oginni FO, Adelusola KA, Durosinmi MA. Orofacial Non-Hodgkin's Lymphoma in Nigerians. *J Oral Maxillofac Surg* 2004;62:1347–50.
16. Wan JH, Trainor KJ, Brisco MJ, Morley AA. Monoclonality in B cell lymphoma detected in paran wax embedded sections using the polimerase chain reaction. *J Clin Pathol* 1990;43:888–90.

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